Designing Creative AI Partners with COFI: A Framework for Modeling Interaction in Human-AI Co-Creative Systems

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Abstract

Human-AI co-creativity involves both humans and AI collaborating on a shared creative product as partners. In a creative collaboration, interaction dynamics, such as turn-taking, contribution type, and communication, are the driving forces of the co-creative process. Therefore the interaction model is a critical and essential component for effective co-creative systems. There is relatively little research about interaction design in the co-creativity field, which is reflected in a lack of focus on interaction design in many existing co-creative systems. The primary focus of co-creativity research has been on the abilities of the AI. This article focuses on the importance of interaction design in co-creative systems with the development of the Co-Creative Framework for Interaction design (COFI) that describes the broad scope of possibilities for interaction design in co-creative systems. Researchers can use COFI for modeling interaction in co-creative systems by exploring alternatives in this design space of interaction. COFI can also be beneficial while investigating and interpreting the interaction design of existing co-creative systems. We coded a dataset of existing 92 co-creative systems using COFI and analyzed the data to show how COFI provides a basis to categorize the interaction models of existing co-creative systems. We identify opportunities to shift the focus of interaction models in co-creativity to enable more communication between the user and AI leading to human-AI partnerships.